Sheep Raising in Central Alberta

AND

A COMPARISON OF SIX BREEDS

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INTRODUCTION

With the object of studying flock improvement, four hundred ewes of the common range type of Western Canada were purchased for the Dominion Experimental Station at Lacombe, Alberta, in 1917 and divided into six lots, and each lot mated with pure-bred rams of a different breed. The six breeds of rams used were: Shropshire, Oxford, Hampshire, Cheviot, Corriedale, Leicester. Each succeeding generation of ewes was bred to a pure-bred ram of the same breed as its sire. By following this procedure valuable data have been secured respecting the rapidity with which the farm flock could be improved in a given time, and also as to the relative merits of the six breeds used in the experiment. The entire project was completed in March 1925, and in the following paragraphs and tables will be found the data collected during the seven-year period.[1]

GRADING-UP FLOCKS WITH PURE-BRED RAMS

From experiments and observations at this Station it may be stated that definite progress was made in improving the type and character of the different flocks representing the different breeds. The third generation of lambs showed that the breed type and character in all six breeds was well established at this stage. For the purpose of rating the comparative degree of breed character attained in the respective breeds, they may be arranged in the following order: (1) Cheviot, (2) Leicester, (3) Shropshire, (4) Hampshire, (5) Oxford, (6) Corriedale.

The photographs of representative specimens of third-generation lambs of each of the six breeds will give the reader some indication of the true breed character exhibited by the third-cross or third-generation lambs.

While there is no doubt that flocks and herds can be greatly improved by the continued use of pure-bred sires, a practice popularly known as "grading-up," yet there are certain factors governing the rapidity with which the breeder progresses toward the establishment of a flock representative of the standard type and character of the breed to which the sires belong. Probably the factor of greatest importance as regards rate of progress is *prepotency* in the sires. Unfortunately, this quality in a sire cannot be accurately predetermined; consequently judgment in this connection must be deferred until a sufficient number of the offspring are available for inspection and for trial in the feed-lot.

Another point that should be kept in mind is that progress is largely measured by comparison. For this reason, the lower the quality and the greater the inferiority of the foundation female stock, the greater will be the comparative progress, particularly in the first and second generation. In other words there will be a greater difference between the scrub dam and her progeny by a pure-bred sire than there will be between a mediocre-to-good dam and her progeny by the same sire, although the progeny in the second instance will undoubtedly be better than the offspring of the real scrub dam. The results from the application of the principle of grading-up in farm flocks should be judged from these

[1] When breed names are used in connection with ewes, lambs and wethers, reference is made to "grade Shropshire" or "grade Oxfords," etc., as the case may be, and not to pure-breds.

view-points when the value of the work is being considered. The flock owner who selects a bunch of ewes that are fairly uniform as to type, fleece, etc., and uses mature, well-developed rams showing plenty of masculinity, will have no difficulty in establishing a good commercial flock in a comparatively short period—a flock possessing to a marked degree the type and character of the breed to which the ram belongs. Even when this has been accomplished, the goal has not yet been reached as it will still be necessary to continue the use of good sires in order to maintain the standard and consolidate the breed characteristics in the flock.

COMPARISON OF GRADED-UP EWES

Comparing the ewes of the different breeds upon the average of four years' weights as the sheep came off the range in the fall, the six breeds rank as follows:

1. Hampshire	111·11 pounds
2. Oxford	106·66 "
3. Corriedale	105·61 "
4. Leicester	104·93 "
5. Cheviot	98·96 "
6. Shropshire	95·51 "
Average	103·64 "

It will be noted that there is very little difference in the weights of the various breeds, the Cheviot and the Shropshire being the most noticeable in that they are both below the hundred-pound mark. It should, however, be remembered that these breeds are both smaller than the other breeds, and the Cheviot and Shropshire ewes were therefore as near their own standard weights as were the ewes of the other breeds that show somewhat greater scale. The comparatively light weight of the Shropshire may be further accounted for, in part, by the fact that during the first years that the experiment was conducted it was difficult to procure the same high quality in rams of this breed as in the other breeds, and on one occasion at least, it was necessary to use lambs as the Shropshire flock-rams, when mature rams were used in the other breeding-pens

COMPARISON OF QUALITY OF WOOL AND WEIGHT OF FLEECES FROM GRADED-UP SHEEP OF DIFFERENT BREEDS

The wool from the flock is an important source of revenue that is directly affected by the quality as well as the quantity of the clip. The wool-clip from the entire flock for the years 1921-22-23-24 was marketed through the local branch of the Canadian Co-operative Wool Growers, and officially graded at the main warehouse of the association at Weston, Ontario. In order to place the wool from each breed on the same basis, a system of arbitrary scores was adopted for the purpose of appraising the quality of the fleeces from the different breeds. A graduated scale of scores was used embracing all of the different grades, a definite score being allowed for each per cent of wool falling into each grade, and the same score being applied to all breeds. The total scores are as follows:

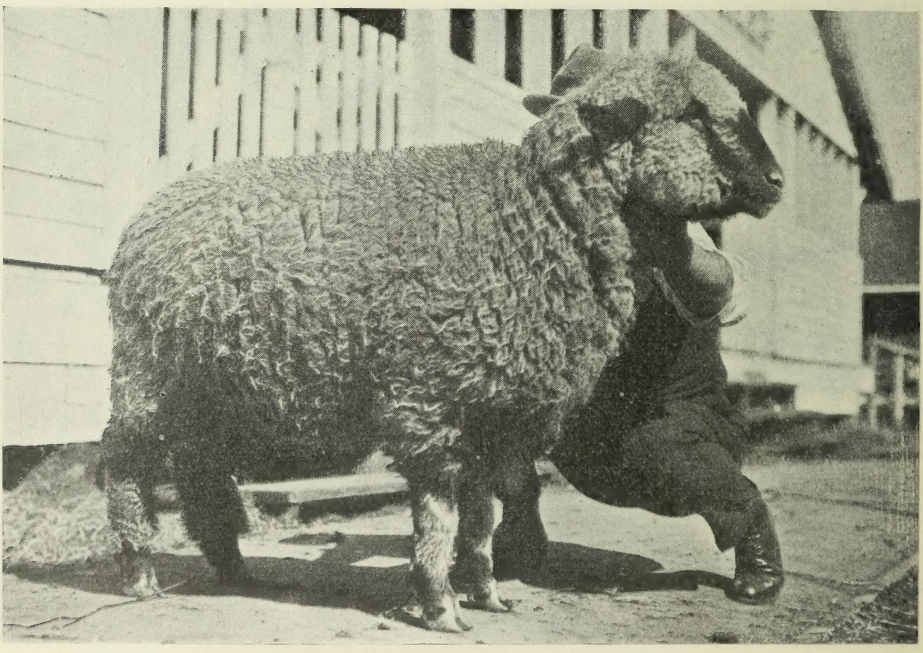
Breed	Total arbitrary scores for 1921-22-23-24
Shropshire	22,670.00 points.
Hampshire	21,774.05 "
Corriedale	21,560.10 "
Oxford	20,282.00 "
Cheviot	19,154.10 "
Leicester	14,895.00 "

The Shropshire comes to the fore in quality of wool, leading all other breeds by approximately 1,000 points. The lowest quality of wool was obtained from

THIRD-GENERATION CHEVIOT WETHER LAMB

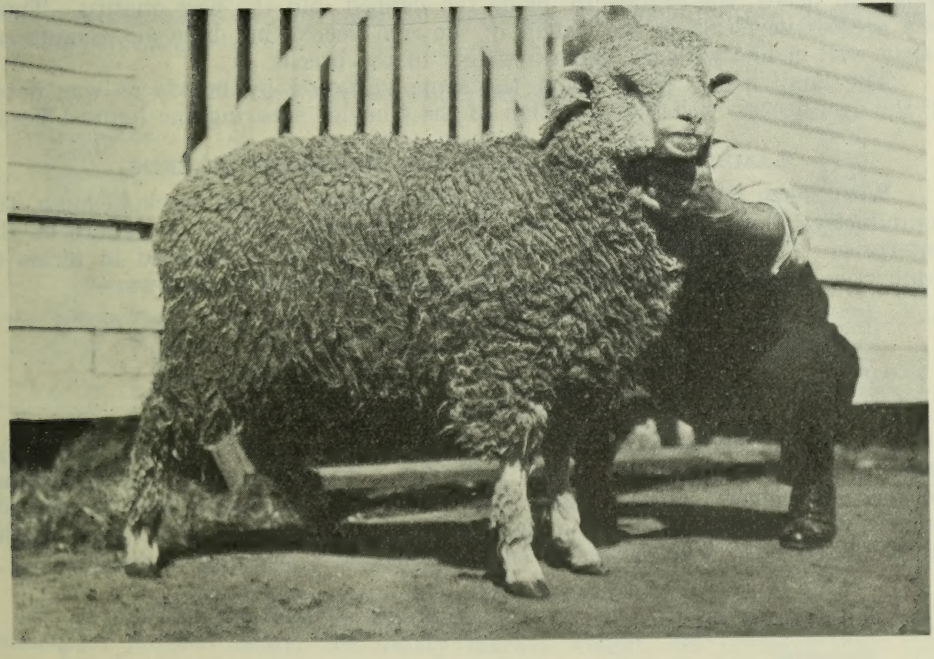
THIRD-GENERATION LEICESTER WETHER LAMB

THIRD-GENERATION SHROPSHIRE WETHER LAMB



THIRD-GENERATION HAMPSHIRE WETHER LAMB

THIRD GENERATION OXFORD WETHER LAMB



THIRD GENERATION CORRIEDALE WETHER LAMB

the Leicester. Generally speaking, the fleece of the Leicester is too open for the severe weather conditions which occasionally prevail during the winter in Alberta

The three-year-average weight of fleeces from graded-up sheep of different breeds, as compared to fleeces from foundation ewes; also the weight of fleeces from pure-bred rams and graded-up ewe lambs of the different breeds is given in the table following:—

COMPARISON OF FLEECES

——	Found-ation	Shrop-shire	Hamp-shire	Oxford	Cheviot	Corrie-dale	Leices-ter
Ewes—							
Total number of fleeces	124	272	118	154	149	127	169
Average weight of fleeces in pounds	6·77	6·02	6·35	6·40	6·40	7·33	6·80
Rams—							
Total number of fleeces		5	4	4	6	2	5
Average weight in pounds		13·0	10·44	13·25	8·33	12·87	10·80
Ewe lambs—							
Total number of fleeces		157	105	90	91	15	91
Average weight in pounds		5·6	5·8	5·21	5·07	5·73	5·64

As stated in the introduction, the foundation ewes were of the range type and therefore contained considerable Merino blood, which probably accounts to some extent for the weight of fleece from the foundation ewes being greater than from the graded-up sheep of the Down breeds and the Cheviot.

It will be noted that there is very little difference between the average weight of the fleeces from the ewes. The four breeds most important to the Central Alberta farmer, judging from the experiments reported herein, viz., Shropshire, Hampshire, Oxford and Cheviot, all range between 6 and 6½ pounds in average weight of fleece; the Shropshire being the lightest, but the best quality. There is a greater variation in the weight of the ram fleeces, but here all weights are fairly well in line with the general weight of the breeds.

The lamb fleeces show about the same variation by breeds as was noted in the ewe fleeces with the exception of the Cheviot shearing the lightest fleece.

LAMBING RESULTS FROM THE DIFFERENT BREEDS

With sheep husbandry as with all other classes of live stock keeping, the reproductive ability determines to a large extent the success or failure of the enterprise. The prolificacy of the different breeds, as determined in terms of lamb crop percentage, based on a three-year average, is as follows:—

Leicester	110·0 per cent
Hampshire	107·2 "
Corriedale	104·7 "
Oxford	104·0 "
Cheviot	102·2 "
Shropshire	91·2 "

Closely correlated with these data is the percentage of lambs lost from lambing until coming off the range in the fall. The data under this head must necessarily be based on the vigour and vitality of the lambs, and the records include all losses from the time the lambs were born until they came off the range in the fall. The figures given are based on a two-year average:—

PERCENTAGE OF LAMBS LOST FROM LAMBING UNTIL COMING OFF RANGE

Breed	%
Cheviot	6·6
Shropshire	15·5
Leicester	21·9
Oxford	22·8
Hampshire	25·0
Corriedale	39·7

Reviewing the two preceding tables, one thing that will strike the reader is that there is a tendency for the breed with the lowest lambing percentages to have the smallest losses; but this does not hold true in all cases.

The following table derived from the two preceding ones gives a more accurate measure of the relative reproducing powers of the various breeds.

PERCENTAGE OF LAMBS RAISED UNTIL COMING OFF RANGE

Breed	%
Cheviot	95·6
Leicester	88·1
Hampshire	82·2
Oxford	81·2
Shropshire	75·7
Corriedale	65·0

From this table it will be noted that the Cheviot breed leads by a definite margin; which might be expected considering the well-known mothering qualities of this breed. Leicesters are also prolific and comparatively good mothers as well. The three Down breeds have little to choose between them. In lack of vitality and heavy mortality in lambs the Corriedale leads by quite a margin. This may be partly explained by the fact that the Corriedale is considered a comparatively "slow" sheep and not an energetic feeder or rustler; consequently the other breeds comprising the flock probably got more than their share of the feeds, with a resulting slight lack of proper nourishment for some of the older Corriedale ewes.

COMPARISON OF WEIGHTS AND DRESSING PERCENTAGES OF LAMBS FROM GRADED-UP EWES OF THE VARIOUS BREEDS

The next logical step in the comparison of breeds is a consideration of the market-lambs from the various breeds. The following tabulations will give the weights of the lambs as they came off the range, also their finished weights and dressing percentages:—

FIVE-YEAR AVERAGE WEIGHT OF LAMBS OFF RANGE

	pounds
Hampshire	67·19
Oxford	66·86
Leicester	62·53
Cheviot	60·60
Corriedale	58·45
Shropshire	57·86

THREE-YEAR AVERAGE WEIGHT OF FINISHED LAMBS AND DRESSING PERCENTAGE

Breed	Weight on hoof	Weight of carcass	Dressing percentage
	pounds	pounds	%
Hampshire	118·7	53·3	44·9
Oxford	117·4	57·3	48·8
Shropshire	115·2	51·1	44·4
Leicester	112·0	53·4	47·7
Corriedale	99·0	48·9	49·4
Cheviot	96·7	46·2	47·8

An analysis of the data on the finished lambs shows that the Cheviot and Corriedales finished nearer the handy market weight (90 pounds) than the larger breeds. It should be pointed out that lambs were carried through to spring-show season in April before marketing, which gave the larger breeds an opportunity to develop their standard weight. Of the three most popular breeds

in Alberta, viz., Shropshire, Oxford and Hampshire, there is very little to be said in favour of any one breed as regards the live weight, but the Oxford leads by a substantial margin in dressing percentage. It is somewhat surprising to note that the Shropshire shows the lowest dressing percentage of the six breeds.

RESULTS FROM EXHIBITING FINISHED LAMBS OF THE DIFFERENT BREEDS BOTH ON THE HOOF AND IN THE CARCASS

A comparison of the different breeds by the show-ring test gave results not entirely consistent with the foregoing tabulations. But in view of the fact that the market requirements call for a compact, well-finished, handy-weight lamb of about 90 pounds, it is not surprising to find the Cheviot leading the other breeds almost without exception. The data in the following table include three years' results in the show-ring with groups of five lambs representing each of the six breeds. All judging was on the basis of market requirements.

Show-ring Judging on Basis of Market Requirements

Breed	1923 placings		1924 placings		1925 placings	
	Hoof	Carcass	Hoof	Carcass	Hoof	Carcass
Cheviot	1	3	1	5	1	1
Shropshire	4	1	2	4	2	2
Oxford	2	2	3	3	5	6
Corriedale	–	–	5	1	3	3
Hampshire	3	4	4	4	4	4
Leicester	5	5	6	6	6	5

The Cheviot demonstrated its qualities as a market-lamb by winning three firsts on the hoof and one in the carcass. The Shropshires ran a close second to the Cheviot. The Corriedale stood up well in the market-lamb classes, notwithstanding the fact that it is regarded as a mutton-sheep, the second year being allowed for further maturity and finishing under its native environment in New Zealand and Australia. The Oxford and Hampshire show about an even break in these tests, with the Leicester consistently last all through. During all three years the lambs were fed and cared for by the same shepherd, run on the same range, and conditions generally, except for such changes as were due to seasonal variation, were practically identical.

A COMPARISON OF SHEARLING WETHERS OF THE DIFFERENT BREEDS

An effort was made to determine the results that may be expected from the feeding and marketing of shearling wethers. The weights as they came off the range in the fall were as follows:—

Hampshire	105·3 pounds
Oxford	104·2 "
Leicester	103·6 "
Corriedale	98·3 "
Cheviot	97·1 "
Shropshire	88·4 "
Average	99·5 "

The exhibition results both on the hoof and in the carcass as well as the dressing percentage as obtained by exhibiting shearling wethers one year at the Edmonton Spring Show are given in the following table:—

Shearling Wethers at Edmonton Spring Show

Breed	Weight	Placings		Dressing percentage
		Hoof	Carcass	
	pounds			
Cheviot	119	1	1	56·2
Shropshire	122	4	2	54·7
Oxford	150	2	4	52·9
Corriedale	131	5	3	47·8
Hampshire	140	3	5	47·7
Leicester	141	6	6	47·1

One year's results are not generally considered sufficiently reliable for definite conclusions to be drawn. It will be noted, however, that the results are identical with those obtained from the show-ring test of wether market lambs dealt with in preceding tabulations, and therefore may be taken as a fairly reliable indication of the merits of the respective breeds. The Corriedale, although as already stated a typical mutton-sheep, did not show up well in this test and the assumption, based on observation, is that the slowness and lack of energy in going after the feed in competition with the other breeds account to a large extent for the unfavourable showing made by this breed.

FEEDING TESTS

COMPARISON OF OAT GREEN FEED AND LOWLAND HAY FOR FATTENING EWES

This project deals with an important problem from the feeder's point of view, as oat green feed and lowland hay are two of the most common and easily procured roughages in Alberta. Two lots of ewes of twenty-one head each were fed equal amounts of whole oats as concentrates, with one lot receiving oat green feed and the second lowland hay. The feeding period was sixty days.

Oats and Lowland Hay for Fattening Ewes

——	Oat green feed 1	Lowland hay 2
	lbs.	lbs.
Average daily gain per head	0·107	1·182
Feed required per pound gain:—		
Green feed	33·32	12·98
Grain	5·09	5·09

These results are decidedly in favour of lowland hay, as the two feeds are usually about the same price per ton, with the price of hay ranging higher when there is a difference.

WHAT ROUGHAGE IS BEST FOR FEEDING SHEARLING WETHERS?

This test was conducted during the winter of 1922-23 and involved eight different kinds of roughage in a feeding-trial with nine lots of wethers, ten head in each lot. The different roughages used were alfalfa, upland hay, slough hay, cut oat green feed, cut oat straw, timothy hay, lowland hay, oat green feed, and one lot was fed on cut oat green feed alone as a check. Whole oats was fed to the first eight lots.

Feeding was commenced January 15 and continued to March 16, 1923.

FEEDING TRIAL—ROUGHAGES FOR SHEARLING WETHERS

—	Lot 1	Lot 2	Lot 3	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	Lot 9
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
Average daily gain per head	0·18	0·34	0·20	0·35	0·15	0·19	0·10	0·24	0·08
Average daily consumption of oats per head	0·975	0·975	0·975	0·975	0·975	0·975	0·975	0·975	
Roughage required per 100 pounds gain:—									
Alfalfa	2,075								
Upland hay		878							
Slough hay			1,667						
Cut oat green feed				1,391					
Cut oat straw					2,815				
Timothy hay						2,548			
Lowland hay							2,808		
Oat green feed								1,965	
Cut oat green feed									(No gain)
	$	$	$	$	$	$	$	$	$
Profit or loss on each lot	−4 43	9 42	3 82	10 47	11 92	−5 60	−0 94	6 67	−12 80

Lot 9 lost 5 pounds during the feeding period but consumed a total of 3,270 pounds of cut oat green feed.

Lots 1, 6, 7 and 9 were also fed at a loss.

The different lots were housed in a double-boarded shed in pens 20 by 8 feet, with hurdles dividing the pens. The following are notes on the roughages:—

1. Alfalfa was extra No. 1 second cutting from the Lethbridge district.
2. The upland hay was first quality prairie wool from Saskatchewan.
3. The slough hay was locally grown, cut in the summer of 1922, and while it was a coarse soft feed, it was remarkably free from brush, moss and rushes.
4. The cut oat green feed was of excellent quality and grown in 1922. It was fine, well matured, well cured, with a high percentage of second growth.
5. The cut oat straw was fine, well matured, with a high percentage of chaff.
6. The timothy hay was 1922 first cutting off stubble. It was well cured and fine in the straw, but contained a high percentage of stubble and weeds.
7. The lowland hay was a good sample of locally grown, 1922-cut, wild hay, reasonably clean and from a meadow which had been cut the previous year.
8. Same as lot 4 but fed whole.
9. Same as lot 5.

Two conclusions are evident from an analysis of the data: first, that *home-grown* roughages made good gains and made the most money, as shown by lots 2, 4 and 5; secondly, that a grain supplement is necessary for fattening wethers, as shown by lot No. 9, which received no grain and lost 5 pounds during the feeding-period. This second point is brought out very forcibly by a comparison of lots 4 and 9; in the former, cut oat green feed fed with oats gave a profit of $1.04 per head while for the latter lot, fed no grain, a loss of $1.28 per head was recorded. Lot 5, which received cut oat straw, shows even a greater profit than lot No. 4. The profits per head were determined on a valuation of 9 cents per pound on March 16, with the exception of lot No. 9, which was valued at 8 cents.

MARKETING FINISHED LAMBS AND SHEARLING WETHERS

The results from one test show it is more profitable to finish and market the lamb crop as lambs than to carry them over for a year and market them as yearling wethers.

The figures respecting this test showed a profit per head, not including labour, of 56 cents for the yearling wether and $4.65 for the lamb wether.

The wide margin between the profits obtained from yearling wethers and lamb wethers is not surprising and is entirely in line with the market requirements in that the demand is for the weight of carcass corresponding with the well-finished lamb rather than for the heavier carcasses from the yearling wethers.

GRAIN RATIONS FOR LAMBS

Although based upon but one year's trials, some interesting results have been obtained on the question of grain rations for lambs. These point to the value of whole grains in the ration and especially to the use of oats. (See lots 1 and 6 in the table). Oats, barley, and the mixture of oats and barley were started at the rate of one third of a pound per head per day and increased one quarter pound per head each two weeks until the lambs were consuming one and one-half pounds per head per day. Oilcake meal and screenings were both started at the rate of one-third of a pound per day per head and were increased as rapidly as the lambs would take them. At the end of the sixty-day feeding period, the oilcake was being eaten at the rate of one pound per head daily, and the lot eating screenings were consuming slightly over one pound per head each day. The oilcake meal and screenings were not as palatable as the other feeds used. If the nutted or cracked oilcake had been used, it would undoubtedly have proved more palatable. The results are given in the following table:

Grain Rations for Lamb-Feeding

—	Lot 1, whole oats	Lot 2, whole barley	Lot 3, barley and oats	Lot 4, oil-cake meal	Lot 5, screening and bran	Lot 6, screen's and oat-chop
Number of lambs in lot	13	13	13	13	13	13
Average daily gain per head.....lb.	0·32	0·29	0·28	0·23	0·21	0·24
Pounds grain required per 100 pounds gain	247	274	286	203	279	251
Profit per head..... $	1·13	0·97	0·87	0·58	0·65	0·92

The grain was fed in shallow troughs and the roughage, consisting of alfalfa, oat green feed and lowland hay, was fed on the ground. To prevent waste the roughage was fed four times each day; oat green feed in the morning, lowland hay before noon, alfalfa hay in afternoon and lowland hay at night. Salt was before the lambs at all times.

The different groups were housed in a double-boarded shed in pens 14 by 10 feet separated by hurdles. The lots were uniform with respect to breeding, and of as uniform weights as possible. The screenings were fed whole and the small amounts of bran and oat-chop added to the respective lots to prevent the lambs from picking out and overeating on the wheat.

Home-grown grains lead both for total gains and economy of gains.

MARKETING LAMBS AND WOOL

In one test, conducted in 1923, it was shown to be more profitable to ship lambs in car-lots to the Edmonton Stock Yards and sell on the open market than it was to sell to the local drovers. Eighty head of lambs were selected and finished and tenders called for from the local drovers. The highest price offered

locally was $11.30 per hundredweight. The lambs sold in Edmonton at $13 per hundredweight which gave a net profit of $0.36 per hundredweight over the local quotations.

The wool clip has been marketed annually for the past four years through the Canadian Co-operative Wool Growers, Limited. In 1922 a comparison of local prices and net Co-operative prices was made. The price realized was 24.4 cents per pound at Weston, Ontario. Marketing costs were 5.7 cents per pound. An increased profit over local prices after paying shipping charges of 7.7 cents per pound was made by marketing through the Canadian Co-operative Wool Growers, Limited.

SUMMARY

The results from all tests and from general observation confirm the value of grading-up as a means of improving the farm flock.

After considering and analysing the results obtained from the different tests, and combining observations made from time to time respecting the reaction of the different breeds under the different seasonal conditions on the same feeds, range, in similar winter quarters and in care of the same shepherd; and also taking into consideration economical factors such as market requirements in lambs and quality of wool, etc., it is the opinion of this Station that in comparing the general utility value of the different breeds for the farm flock in Central Alberta, they should be listed in the following order: (1) Shropshire, (2) Hampshire, (3) Oxford, (4) Cheviot, (5) Corriedale, (6) Leicester.

The Cheviot was first among all breeds in many of the experimental tests and is an ideal market-lamb, but due to its nervousness, restlessness and, frequent wildness, it cannot be generally recommended as suitable for the farm flock. However, in the hands of an experienced sheepman it is considered that it can be handled successfully in small flocks.

The Leicester is a good mutton-sheep but owing to its open fleece, is not to be recommended for western conditions.

The Corriedale, as already stated, is a typical mutton-sheep but is a "slow" sheep, and probably, if run as a separate flock would show up to better advantage in comparison with the other breeds than these records indicate.

Of the three popular breeds in central Alberta, viz., Shropshire, Oxford, and Hampshire, it is considered from experiments conducted at this Station that the Shropshire is the most suitable breed for the general farm flock, mainly on account of the lambs developing a finished carcass within the range of the desirable market weight. The good quality and density of its fleece, and its domesticated nature are valuable characteristics for the farm flock.

It will be well again to mention the fact that the weights in the table comparing the lambs of the different breeds were taken when the lambs were approximately ten months of age, consequently, the lambs had reached, through growth rather than excess finish, a weight too heavy for ideal market-lambs. This practice was followed, however, in order to have the advantage of exhibiting at the Edmonton Spring Show where the different breeds could be judged by independent judges, and also where the lambs would be in competition in the open classes with other breeds from the flocks of private breeders.

The quality of the wool of the Shropshire, as shown on a four-year average, is slightly superior to all other breeds. The Oxford and Hampshire have been close competitors in all tests and both are good utility breeds. Broadly speaking, under the average farm conditions a farmer would not go far wrong in selecting any one of the three Down breeds, Shropshire, Hampshire, or Oxford. Under special conditions and exceptional ability as a shepherd, the Cheviot and Corriedale may be used to good advantage.

SOME OF THE MAIN POINTS BROUGHT OUT IN THE WORK WITH THE SIX BREEDS

1. The Cheviot made the most rapid progress in grading-up. The Shropshire was first among the three Down breeds.
2. The Leicester had the highest lambing percentage but the lowest grade of wool.
3. The Cheviot had the lowest percentage of losses in lambs with the Shropshire a close second.
4. The Hampshire had the heaviest lambs when coming off range and also when finished, but the Corriedale and Oxford lead in dressing percentage.
5. In the show-ring test for market-lambs both on the hoof and in the carcass, the Cheviots lead all breeds with the Shropshire first of the three Down breeds. The same is true with yearling wethers.
6. Lambs are more profitable feeders than yearling wethers.
7. The Shropshire leads in quality of wool.
8. Oats is the best single grain for sheep. Screenings and oat-chop mixed give good results.
9. Prairie wool is the best roughage for fattening lambs or wethers.
10. Of the feeds grown in the long-grass country, cut oat green-feed ranked first with slough hay second.
11. It is more profitable to market lambs at central stock yards, providing the feeder has a carload, than to sell to local drovers.
12. Greater profits can be made by marketing wool through the Canadian Co-Operative Wool Growers, Limited.

SOME SUGGESTIONS FOR FLOCK OWNERS

1. Flush the ewes before breeding. A good rape pasture in the fall is suitable, followed by a moderate allowance of grain.
2. Use potassium iodide, or iodine in some form, to prevent goitre. A good way to feed iodine, is to dissolve thoroughly four ounces of potassium iodide in water and sprinkle the solution over 100 pounds of salt, mix thoroughly and allow sheep access to the salt at all times. Particularly in the case of pregnant ewes is this practice recommended.
3. Castrate all males intended for market-lambs when 10 days or two weeks of age. Dock all lambs at this time.
4. Dip the entire flock at least once each year. This will keep down ticks, lice and scab.
5. Supply the flock liberally with salt and with good water.

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PUBLICATIONS ON SHEEP HUSBANDRY

The following publications of the Department of Agriculture relating to sheep are available on application to the Publications Branch, Department of Agriculture, Ottawa. A request to this address will bring the full list of the publications of the Department.

Castration and docking, value of	Pamp. 16, L.S.B.
Feeding-rack and trough for sheep	Ex. Cir. 66.
Goitre, how to prevent	Cir. 3, N.S.
Lamb carcasses, dressing and cutting	Pamp. 8, N.S.
Lambs, docking and castration of	Pamp. 46, N.S.
Mange in horses, cattle and sheep	Bul. 31, N.S.
Sheep barn, the	Ex. Cir. 95.
Sheep dipping	Cir. 29, N.S.
Sheep, the feeding of	Ex. Cir. 61.
Sheep husbandry in Canada	Bul. 41, N.S.
Sheep, Karakule and Persian Lamb	Pamp. 15, L.S.B.